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JAN 1 1935
PLANT INDUSTRY

WEEKLY STATION REPORTS

OF THE DIVISION OF

DRY LAND AGRICULTURE

BUREAU OF PLANT INDUSTRY

U. S. DEPARTMENT OF AGRICULTURE

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REPORT FOR THE MONTH OF NOVEMBER, 1934.

HAVRE:

The month was open and dry for this season of the year. The average temperature was 37.5° an excess of 7.5° above the mean. All field work such as cleaning thistles from the plots and fence rows was completed.

Feed was hauled for the winter cattle experiments. Eight lots of calves totaling 80 were started on trial the week of November 19. Nine lots of cows, two year old and yearling heifers will be started in the near future. There has been delay starting the latter because of lack of stock water in Beaver Creek. The early flow began about the 10th of November but was very light and was badly needed by the Ditch Company for stock reservoir further down the irrigation canal. The flow has increased some although it is still rather low.

The open weather was favorable for all stockmen. Grass is scarce and winter feed none too plentiful. Many stockmen have not more than 1/4 ton of hay per head, whereas 1 ton is the least amount considered safe for the winter. Even livestock numbers have been materially reduced - many more than 50 per cent - a hard winter would cause severe losses.

Fall grains are in good condition. Some of the conifers in the new shelter belt have died, apparently as the result of the dry season.

Maximum temperature, 70°; minimum, 5°; precipitation, 0.12 inch.

JUDITH BASIN:

The weather continued dry and mild through most of November. Practically all the precipitation came in the form of snow the latter part of the month. There was about 2 inches of snow on the ground at the close. Wheat is in need of moisture before cold weather begins. The mild weather has permitted stockmen to graze their stock in stubble fields, thus saving their meager supplies of hay for colder weather. Many cattle and sheep have been disposed of, but there are still more livestock on farms than can be taken care of with the present amount of feed, provided there is anything like a normal winter. Winter feeding of cattle on the station was started November 20.

The only field work during the month was the seeding of 40 acres of crested wheatgrass on old sweet clover fields. There was a 4-inch growth of Russian thistles to provide winter protection. Such seedings made in the late fall of 1932 resulted in good stands.

Maximum temperature, 75°; minimum, 10°; precipitation, 0.17 inch.

HUNTLEY:

November as a whole has been mild and very dry. No precipitation of consequence has fallen during the month, excepting a wet snow received during the last 24 hours. This moisture may be sufficient to penetrate to the depth of seeding and bring up late-sown winter wheat and revive fall grains that are already emerged. It has been reported from some districts that much of the winter wheat has been killed out

by fall drought. Fall-sown grains on the plots appear dry, but to date no dead plants have been found.

The month has been favorable for the growth of many sorts of spring plants. The seed of several kinds of weeds has germinated, and in places the roadsides are green with seedlings. In some of the neighborhood flower gardens early spring iris have bloomed, oriental poppies are in bud, and peonies and tulips are coming through the ground.

Maximum temperature, 74°; minimum, 9°; precipitation, 0.16 inch.

SHERIDAN:

Temperatures were high throughout the month until the last week, when they were nearly normal. The mean temperature for the month was nearly 8° above the station average for the month, and was the highest since 1917. Snow fell only twice during the month in sufficient quantity to measure, and then very light, adding nothing to the moisture already in the soil. Wind movement was below the average.

Growth of grass, fall sown grain, and volunteer spring grain continued until the last ten days of the month, making good grazing throughout the first two-thirds of the month. There was fair grazing over the last 10 days, but some feeding was necessary on the station. Generally no feeding was necessary during the month in this section.

Russian thistles were cleared from all fields on the station, excepting on new alfalfa seedings. The driveway was completed, shaled, and graveled around by the cottage under construction. Very little work was done on that building, all relief work in the county being stopped early in the month on account of the funds being used up. Other work consisted mainly in making the corrals and sheds ready for winter and cleaning grain.

Maximum temperature, 74°; minimum, 15°; precipitation, 0.25 inch.

DICKINSON:

Dry, mild weather continued through the month. Precipitation amounted to only 0.14 inch. This brings the total for the 11 months of 1934 to only 7.69 inches, slightly more than half of the normal amount for the period. The mean temperature of 33.7° was 5.4° above normal. A minimum of 2° on November 30 was the lowest recorded. The soil thermograph record shows the soil was still unfrozen on the last day of the month. During the first half of the month wind movement was about normal, but during the last half most of the days were calm and fog occurred several days.

Routine work of the season was about all that was done outside. Some dead trees were removed from the old jack pine planting. These are now nearly all dead except on the border. Shrubbery about the grounds was mulched, and some of the ash trees were mulched to prevent further soil blowing.

Visitors included E. J. George and P. F. Trowbridge.

MANDAN:

Horticulture - The weather during the past season was very adverse to all horticultural plantings. Long continued drought has caused the death of many trees and shrubs, and many more have been weakened to such an extent that they may easily succumb to winter injury or to a further continuation of the drought. Red spiders also

flourished, as is often the case during dry periods, and caused considerable damage to the foliage of trees. High winds combined with the dry soil to produce an unusual amount of damage through soil blowing.

As might be expected, yields were generally low. Such small fruits as strawberries, currants, gooseberries, raspberries, and grapes produced little or no fruit, and many plants died. However, a much more cheerful picture is presented when we consider the hardy tree fruits such as plums and crabapples, and some of the hardy native fruits such as juneberries, chokecherries, Golden currants, and sandcherries. Plums and plum hybrids again proved to be the most reliable of the tree fruits for the northern Plains. Over 5,700 pounds of plums were produced in the plum variety orchard, which is about 1,000 pounds more than the crop of 1933, and about one-quarter of the bumper crop of 1932. Some of these plums were of surprisingly good quality considering the dry season. The highest yielders were generally native varieties, although some of the sandcherry hybrids and Japanese hybrids produced good crops. Opata, Compass, Cree, Teton, Wyant, and Waneta were among the highest yielders. Some of the new Minnesota plums produced fruit of high quality. Mandan selections 48 and 75 came through the drought in good condition and produced heavy crops of fruit.

Florence out-yielded other varieties of crabapples. The high yields and good quality of fruit obtained from this variety were surprising, considering the adverse conditions. Other varieties of crabapples to produce fair crops were Dawn, Sweet Russet, Carleton, Magnus, Amur, Alexis, Dolgo, Olga, Robin, Tony, and Sel. 1. Anoke and Anisette were the only varieties of apples to produce fair crops.

As before stated, the behavior of some of the native fruits was also very encouraging in this dry season. Golden currants, sandcherries, chokecherries, and Juneberries all came through the dry period with very little loss through killing, and at the same time bore fair to good crops of fruit. On the other hand, buffaloberries, highbush cranberries, and Chinese cherries produced but little fruit. The latter two fruits suffered severe drought injury.

But few selections were made in the breeding blocks, where close planting intensified the effects of the dry weather. A number of the old selections were propogated for further testing, and a few were propogated for small scale distribution to experiment stations and fruit cooperators.

Vegetables on the whole produced poor crops. The acre garden project was almost a complete failure. Owing to the extremely dry spring, seeds planted in the latter part of April did not germinate until after a couple of heavy June rains. Special project such as tomato breeding and sweet corn breeding were unsuccessful. A very good stand of plants was produced in both projects, and prospects were good up to the middle of July, when excessive heat apparently killed the pollen and poor fruit setting was the result. There were no ears of corn realized from hand pollination or from open field pollination. Two later plantings of sweetcorn failed also, this time due to an unusually vicious attack of the corn ear worm. Tomato yields were spotted, and the small crop was used almost entirely for seed production. It would appear that at least three of the selections grown under mass production have considerable value as to drought resistance and yield,

and so might be worthy of introduction to farmers in the northwestern section of the Great Plains area.

Ornamental projects under field tests such as hedges, collections of hardy shrub varieties, and roses were fairly successful. There was sparse growth and bloom, but the majority survived with the exception of roses. These were much weakened from the previous year of drought, and even the hardiest varieties made only a feeble growth in the spring and later succumbed.

The lawns and plantings on the grounds made a good showing, due to frequent irrigations, from late May to the end of September.

BELLE FOURCHE:

The month was abnormally warm, but the weather turned somewhat colder the last week, and the ground was sufficiently frozen to interfere with plowing on November 30. With the exception of a moderate rain on November 24, the precipitation consisted of a number of showers or flurries of snow too light to be of any value, but the total for the month was approximately normal. No strong winds occurred, and the wind movement was exceptionally low.

Jackrabbits have done a great deal of damage to winter wheat on the rotation plots, but otherwise all winter grains are in fairly good condition. The soil is becoming quite dry, and a substantial rain or fall of snow is badly needed.

Maximum temperature, 74°; minimum, 16°; precipitation, 0.47 inch.

ARCHER:

During the first nineteen days of November the weather was mild and dry. The remainder of the month was cold and threatening with light flurries of snow. The total precipitation for November was 0.03 inch, which is also the total precipitation for October and November. This is next to the driest 2-month period in the history of the station, the driest being January and February, 1925; the third driest 2-month period was October and November, 1933. To date the total precipitation for the year is 8.51 inches. This is the least precipitation to occur during the first 11 months of the year in the history of the station.

The dry conditions have been unfavorable for winter cereals, which are in a very poor condition. The mild weather was favorable for livestock but rather unfavorable for the ranges. The grasses are very dry and are subject to being broken off and blown away.

On November 26 the station sold 11 head of dairy cattle and the lambs which had been used in the corn pasturing experiment. The average individual gains of the lambs for four 2-week periods are as follows:

	Sept.29	Oct.13	Oct.27	Nov.10	Av.gain in 56 days
Lot 1-Cottonseed meal ¼-lb.per day.	4.0 lb.	5.0 lb.	5.2 lb.	3.6 lb.	17.8 lb.
Lot 2-No supplement	3.9 "	5.1 "	4.7 "	3.3 "	17.0 "

No doubt the smaller gains during the last period were due to the depletion of the corn in the pastured fields. Slaughtered lambs were well covered with fat over the back and kidneys.

Director W. L. Quayle, Dr. H. D. Port, State Veterinarian, and L. B. McWethy of the State Department of Education were station visitors.

Maximum temperature, 71°; minimum, 9°; precipitation, 0.03 inch.

NORTH PLATTE:

The month was dry and open, with mild temperatures and low wind movement prevailing until the last week. Since the 25th, there has been considerable cloudiness, several very light snows, and heavy white frosts. Below freezing temperatures occurred on all but four nights; but records below 20° occurred only five times, with a low of 10° on the last day. The maximum was 76° on the 7th. The mean was 39°, an excess of 2.4°. September is the only month of the year to date without an excess. Precipitation for the month was 0.17 inch. Heavier snows have occurred both east and west. Wheat is in excellent condition in the eastern half of the State, dry in the west, and especially dry in the southwest.

All plots were sampled for chemical studies in preparation for the abandonment of the present location in accordance with arrangements made to allow its use for the construction of a forebay in connection with power development of the Platte Valley Power and Irrigation District.

AKRON:

November weather became colder as the month progressed. The maximum for the month was 76° on the 6th. The maximum was not above 56° after the 15th. The minimum, and the coldest weather thus far this fall, was 6° on the night of the 29th. The month's precipitation of 0.37 inch made up of five different measurable amounts was well below the established average of 0.53 inch for the month. This was sufficient to brighten the winter wheat that had emerged but was not enough to cause any further emergence. There has been but 1.13 inches of rainfall since September 1. Winter wheat stands on the station are very spotted on fallow preparation, and no emergence has taken place on any other type of preparation.

COLBY:

November was a dry, warm, open month. The first half was clear nearly all of the time, but during the last half precipitation was recorded on nine days and there were long periods of cloudiness, fog and mist. The last five days were snowy, but the total snowfall was only about an inch. In some sections of this corner of the State rainfall and snow during the month were much heavier than in this vicinity. Part of the snow drifted badly, but much of it lies where it fell.

Winter wheat that was up deteriorated considerably during the month on account of the dry weather. Rabbits are numerous where there is anything green and are keeping the meager growth eaten off on most fields. They have even been coming to town in large numbers and feeding on the lawns at night. The wheat that was planted in dry ground is still unsprouted, as the moisture has not penetrated the soil beneath the immediate surface.

The late fall listing, plowing, and subsoiling were done early in the month. The ground had received so little moisture during the summer that it turned up mostly dry, dusty, and loose. There were almost no clods. The top dressing of straw and manure was applied on the 7th. We had to use baled straw that had been shipped in.

O. J. Grace and W. D. Griggs, formerly with this Division and now with the forest service in connection with the Great Plains Shelter Belt, visited the station Thursday and Friday of this week.

Maximum temperature, 78°; minimum, 11°; precipitation, 0.18 inch; snow, 1 inch; precipitation, 47-year average, 0.59 inch.

Precipitation January - November, 1934, 7.04 inches; 47-year average, 17.23 inches.

HAYS:

The weather during the month of November was dry, mild, and quiet. The dry weather was interrupted only by two small showers in the early part of the month and by a third of an inch of water in the form of snow which fell November 27 - 29. "Indian Summer" weather prevailed throughout the month. Winter wheat has been much in need of rain, and still needs more moisture before heavy freezing weather sets in. The storm period seems to have come to an end, the sky being clear to-day and the snow gradually disappearing, although the ground is still covered with about 2 inches of snow.

The supply of dry feed in all of western Kansas is extremely limited. Because of this fact and the cost of shipping in feed, the population of livestock was greatly reduced, but most farmers have retained some livestock hoping for wheat pasture to furnish a large part of the fall and winter feed. Drought has blasted the hope of pasture, there being little or practically none north and west of Hays. As a result during the past month the north and south highways have been literally alive with trucks carrying hundreds of cattle and horses into counties south and east where wheat pasture sells for from $1.25 to $2.00 per head per month.

Maximum temperature, 83°; minimum, 22°; precipitation, 0.75 inch.

GARDEN CITY:

November was dry, total precipitation, 0.19 inch. None of the wheat in this section of Kansas has made growth enough to insure soil protection or to provide any pasture. Wheat on summer fallowed land held its own and made a little headway, but it is spindling. On other fields the stand was gradually thinned by a lack of moisture. The last date of seeding of the foot-rot experiment has not emerged. Lister furrows and drill furrows were filled with snow from a light snowfall with heavy wind on the 27th.

The station is conducting a feeding experiment with range lambs. This year's work will be chiefly in the utilization of roughages - Atlas, Sumac, milo, and alfalfa. The basic roughage of a remnant lot is ground Russian thistles.

TUCUMCARI:

November was comparatively warm, windy, and clear, although the total precipitation of 0.73 inch was only slightly below the November normal. This was the windiest November since 1918 and the warmest since 1927.

The past autumn has been one of the finest for fall work and general harvest on record - with practically nothing to harvest in this entire section.

Although a minimum temperature of 33° was recorded late in October and 32° early in November, the first killing frost of the fall was delayed until November 22, when 28° was recorded. This was the latest on record and about one month later than normal. Previous frosts had served to only nip leaf tips on corn and cowpeas, with no injury noted on sorghums.

Harvest included some 15 kafir plots and about 20 milo plots, most of which just failed being considered failures. Plowing of green manure plots and fall plowed plots was performed in late November, after just enough moisture had fallen to moisten the soil to the furrow bottom.

Ten days ago rather general precipitation occurred over this area, with the greater amounts falling on wheat growing sections of this area, with the greater amounts falling on wheat growing sections of this and adjoining counties. Wheat, which was suffering, is responding fast and is now carrying thousands of cattle which otherwise would have no visible means of support. Wheat is in normal condition, but below the first foot or 15 inches the subsoil is extremely dry.

Precipitation for 1934 to date totals 6.10 inches, and for the past 15 months it is 7.47 inches.

Maximum temperature, 80°; minimum, 21°; mean, 49°.

DALHART:

The fore part of the month was unseasonably warm, but the latter part gave cold, though normal, temperatures. Wind velocities were moderate for the most part, although soil movement was intense on several occasions. One of the most severe periods of soil movement was the night of the 27th and the morning of the 28th. The small wheat and rye plants (later seedings) were severely punished and in many cases were completely killed, although the soil does not appear to have been seriously eroded. The larger and earlier seedings do not appear to have been so severely punished and show very little effect of the wind. The wind was accompanied with a light snow on the 28th. There were many snow drifts when the wind died down, which have later proved to be mainly sand.

Wheat and rye had made good fall growth until the latter part of the month. The cold weather has apparently checked fall growth. There is a scarcity of feed for stock, and many have carried more cattle than they have feed for, in the hopes that winter pastures might winter their stock. Reports are that from this area east increasing amounts of moisture were received during November which have greatly benefited wheat.

Maximum temperature, 80°; minimum, 15°; precipitation, 0.34 inch.

Precipitation January - November, 1934, 9.78 inches; normal 17.71 inches.

BIG SPRING:

Weather conditions during the past month for the most part have been very favorable for harvesting. Very little cold weather has been experienced so far this fall; the first killing frost of the season was on November 29, which extended the growing season 26 days longer than normal for this section. This late growing season allowed much late feed to mature a fair crop of grain which would have been a failure during a normal growing season. Cotton is also maturing a much better crop

than was expected.

About 2 inches of snow was received on the night of November 28; moisture from this together with that from a light shower that preceded the snow totaled 0.31 inch. Two other rains during the month totaled 1.24 inches. This moisture has improved the wheat prospects and put the soil in good shape for fall plowing.

Milo heading from the increase fields was completed during the month, and the cotton was picked over. There will be one more picking and possibly two before the bolls all open.

Cattle for the feeding experiments were received November 6. Twenty head are being feed individually and 20 more are being fed in a group. A study is being made of rate of gain and feed consumption of different types of individuals.

J. M. Jones of the Animal Husbandry Division of the Texas Station, and I. F. Atkins of the Denton Substation, were station visitors during the month.

Maximum temperature, 77°; minimum, 28°; precipitation, 1.60 inches.

LAWTON:

The mean temperature of 58.6° from November 1 to 20, inclusive, was 9.6° above the monthly average. The first frost of the season, November 4, with a minimum temperature of 32°, was light and did not damage garden truck, late growing sorghums, or cotton leaves on the upland. Cotton leaves on the lowland fields were killed. An extremely heavy frost was recorded November 23 with a minimum temperature of 34°. Cotton, late sorghums, and vegetables suffered but little damage. A heavy frost on the morning of the 26th with a temperature of 32°, followed by a temperature of 30° on the morning of the 28th terminated the season's growth of all of the above mentioned crops. The mean temperature for the month was 4.7° above normal.

No precipitation was recorded for the period October 24 to November 13, and early planted small grain crops showed a very decided need of additional moisture. This demand was relieved by precipitation from November 14 to 29 amounting to 3.32 inches. The nine rains recorded during this period were well absorbed by the soil, and only temporary supplies of stock water became available. Wheat, oats, and barley responded quickly, and these crops are in good winter condition.

Fall plowing and fall listing were out of the question previous to the mid-November rains. The ground has dried slowly, but should be in good condition for such field operations early in December.

The growing season that extended so late into the fall was very favorable to growth and development of late cotton bolls, and to the growth and maturity of sorghums fields that were planted on fertile, productive soil. The June 1 and 15 plantings of cotton matured much better yields than were anticipated.

State ginning statistics for the period ending November 14 show that the local county ginned 4,186 bales as compared with 27,586 for the same period in 1933. The total number of bales ginned in the State for the same period was 267,344 bales as compared with 1,037,131, in the previous year.

WOODWARD:

During the forepart of the month wheat made a rank growth, and there were reports that in some places it had started jointing and much fear that it would do so. The heavy growth had exhausted the moisture by the middle of the month, and leaves had begun to die. Over the 16th and 17th there was precipitation of 1.31 inches. This revived the wheat, and occasional showers since have sustained it. Temperatures for past two weeks have been much lower than previously, so that wheat has grown but little and has used the rainfall to advantage.

There probably have never before been so many livestock on wheat pasture as at present. At $1.50 to $2.00 per head per month they are bringing many farmers a good income. With only the normal rainfall for the remainder of winter, the heavy pasturing cannot of course continue for long.

Work of the month has consisted of grading and surfacing roads, cleaning up the last of the sorghum harvest, and picking seed from station trees for various agencies requiring it.

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